

PATENT COOPERATION T ATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 23 March 2001 (23.03.01)	
International application No. PCT/US00/17040	Applicant's or agent's file reference RCA 89646
International filing date (day/month/year) 21 June 2000 (21.06.00)	Priority date (day/month/year) 15 July 1999 (15.07.99)
Applicant WHITE, David, Glen et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

14 February 2001 (14.02.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Mafla Telephone No.: (41-22) 338.83.38
---	--

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RCA 89646	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 17040	International filing date (day/month/year) 21/06/2000	(Earliest) Priority Date (day/month/year) 15/07/1999
Applicant THOMSON LICENSING S.A.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

DEMODULATION SECTION IN A MULTIPLE PROTOCOL RECEIVER

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/17040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/00 G06F13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 776 127 A (HITACHI LTD) 28 May 1997 (1997-05-28) abstract column 3, line 39 -column 4, line 8; figure 1	1-8
Y	EP 0 867 812 A (TOKYO SHIBAURA ELECTRIC CO) 30 September 1998 (1998-09-30) abstract column 2, line 29 -column 3, line 52 column 10, line 57 -column 11, line 35; figures 3,4 claims 3,4,8	1-8
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

*** Special categories of cited documents :**

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

15 September 2000

Date of mailing of the international search report

28/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Beaudet, J

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 00/17040

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 574 273 A (TOSHIBA AVE KK ; TOKYO SHIBAURA ELECTRIC CO (JP)) 15 December 1993 (1993-12-15) column 3, line 33 -column 3, line 53 column 7, line 51 -column 8, line 9 column 11, line 36 -column 11, line 48 claim 1; figure 3 ---	1-6
A	WO 86 07228 A (XITEL PTY) 4 December 1986 (1986-12-04) abstract; claim 9; figure 1 ---	1-6
A	WO 99 11026 A (NOKIA TELECOMMUNICATIONS OY ; YLAE MELLA JARMO (FI)) 4 March 1999 (1999-03-04) abstract page 9, line 28 -page 9, line 36; figure 5 claims 1,3,5 ---	1-6
A	EP 0 347 083 A (ADVANCED MICRO DEVICES INC) 20 December 1989 (1989-12-20) column 1, line 6 - line 19 ---	7
A	EP 0 822 714 A (THOMSON CONSUMER ELECTRONICS) 4 February 1998 (1998-02-04) abstract column 4, line 13 -column 4, line 34; figure 1 -----	8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/17040

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0776127	A	28-05-1997	JP 9205638 A	05-08-1997
EP 0867812	A	30-09-1998	JP 10116064 A	06-05-1998
			WO 9816887 A	23-04-1998
EP 0574273	A	15-12-1993	JP 5347736 A	27-12-1993
			CA 2098372 A	13-12-1993
			DE 69320868 D	15-10-1998
			DE 69320868 T	28-01-1999
			KR 9615838 B	21-11-1996
			US 5418815 A	23-05-1995
WO 8607228	A	04-12-1986	AU 586001 B	29-06-1989
			AU 5955686 A	24-12-1986
			EP 0221962 A	20-05-1987
WO 9911026	A	04-03-1999	FI 973505 A	27-02-1999
			AU 8980698 A	16-03-1999
			EP 1010297 A	21-06-2000
EP 0347083	A	20-12-1989	US 4918332 A	17-04-1990
			AT 116492 T	15-01-1995
			DE 68920208 D	09-02-1995
			DE 68920208 T	29-06-1995
			ES 2065382 T	16-02-1995
			GR 3015601 T	30-06-1995
			JP 2039621 A	08-02-1990
			JP 2724331 B	09-03-1998
EP 0822714	A	04-02-1998	US 5946052 A	31-08-1999
			BR 9704214 A	26-01-1999
			BR 9704216 A	26-01-1999
			BR 9704217 A	26-01-1999
			CN 1175166 A	04-03-1998
			CN 1175849 A	11-03-1998
			CN 1176560 A	18-03-1998
			EP 0822715 A	04-02-1998
			EP 0822716 A	04-02-1998
			JP 10117329 A	06-05-1998
			JP 10117330 A	06-05-1998
			JP 10117328 A	06-05-1998
			SG 53022 A	28-09-1998
			SG 53023 A	28-09-1998
			US 5946045 A	31-08-1999

PATENT COOPERATION TREATY

RECEIVED

AUG 14 2001

PCT IS&S

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TRIPOLI, Joseph S. et al.
THOMSON MULTIMEDIA LICENSING INC.
P.O. Box 5312
Princeton, New Jersey 08540
ETATS-UNIS D'AMÉRIQUE

RHK/JBH

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

Date of mailing
(day/month/year) 07.08.2001

Applicant's or agent's file reference
RCA 89646

IMPORTANT NOTIFICATION

International application No.
PCT/US00/17040

International filing date (day/month/year)
21/06/2000

Priority date (day/month/year)
15/07/1999

Applicant
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Schalinatus, D

Tel. +49 89 2399-8242



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA 89646	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</div> </div>	
International application No. PCT/US00/17040	International filing date (day/month/year) 21/06/2000	Priority date (day/month/year) 15/07/1999
International Patent Classification (IPC) or national classification and IPC H04N5/00		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14/02/2001	Date of completion of this report 07.08.2001
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Loeser, E Telephone No. +49 89 2399 8482



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17040

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):* **Description, pages:**

1-9 as originally filed

Claims, No.:

1-13 as received on 03/07/2001 with letter of 29/06/2001

Drawings, sheets:

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/17040

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-13
	No: Claims
Inventive step (IS)	Yes: Claims
	No: Claims 1-13
Industrial applicability (IA)	Yes: Claims 1-13
	No: Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

1. General

The present application does not satisfy the criteria set forth in Article 33(3). Details of the objections are set out below.

2. Concerning Section V - Articles 33(2) and 33(3) PCT

2.1 Prior art

The following documents are cited:

D1: EP-A-0 776 127;

D2: EP-A-0 867 812;

D3: WO-A-86/07228;

D4: WO-A-99/11026.

2.2 Claim 1

The subject-matter of claim 1 defines

- (a) a number of modules each performing a same or similar function (demodulation in the present case) wherein
- (b1) the modules operate according to respective different modulation schemes;
- (b2) each module is provided with a tri-state output terminal for output data;
- (c) a signal bus coupled between the output terminals, and
- (d) a signal processor for processing output data (demodulated data) in the present case).

According to the description (p.3 lines 12-20) and to D1 (Fig. 1), it is known in the prior art to provide a number of demodulator modules 16-19 as identified in feature (a) above. It is further known to couple the output signal of a selected one (selected via a multiplexer) of such modules to a signal processor (D1: Fig.1: decoder 21). Thus the prior art (e.g. D1) also anticipates feature (d) identified above.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

The demodulators 16-19 disclosed in D1 do not disclose the claimed features (b1), (b2) and (c).

However, D1 also discloses a bus system 8 to which are connected a CPU 1 as a signal processor, and a hard disk device 3, a CD ROM device 4 and a MO device 5. The data stored with the latter devices are known to be stored according to different modulation schemes. Thus there is an implicit disclosure that when data signals are read from these devices, they are to be demodulated from the stored format to a format for subsequent processing. This requires respective different demodulators within the different devices. Hence the disclosed bus system with storage and processor modules connected thereto anticipates all features of claim 1 identified above with the exception of feature (b2).

Features (b2) and (c) are long and well known in computer technology. Tri-State is (or at least was) a trademark pertaining to output ports of a device which could be set either into a disabled or high-impedance state to effectively disconnect them from a bus, or into a enabled/low-impedance state in which the outputs may impose logic low or logic high levels onto the bus. Such technology is disclosed in D2 (col.2 line 29 - col.3 line 52), D3 (claim 9) and D4 (abstract; Fig.2).

Thus in light of the disclosure of D1 and the normal design options of the skilled person exemplified by the well-known Tri-State technology such as exemplarily disclosed in D2, D3 or D4, the subject-matter of claim 1 lacks an inventive step (Art. 33(3) PCT contravened).

It is to be noted that claim 1 would also have to be considered to lack an inventive step when following the chain of reasons developed below with respect to claim 9.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

2.3 Claim 9

Claim 9 provides the following features in addition to the features of claim 1 identified in paragraph 2.2 above:

- (d) the demodulators are comprised in a consumer video receiver and demodulate respective video signals;
- (e) the signal processor is a controllable transport processor for processing a selected one of the demodulated video signals, to generate the represented video signal;
- (f) the video signals have respectively different data protocols and are modulated using respectively different modulation schemes.

The claimed apparatus can thus cope with the situation that differently modulated video signals with respective different data protocols are present. Such a situation is known from the prior art cited in the description (p.2 line 17 - p.3 line 20).

According to the described prior art (p.3 lines 12-20), it is known to provide additional video demodulators for respective additional modulation schemes, and an output signal from plural demodulator modules is selected by using a demultiplexer.

Hence adding a demodulator would require expanding the demultiplexer, unless free inputs are provided in excess. The described prior art is considered to anticipate all features of claim 9 with the exception of the claimed bus system with the Tri-State outputs of the demodulators.

Accordingly the subject-matter of claim 1 solves a problem of lacking expandability or flexibility of the prior art cited on p.3. This view is confirmed on p.4 (lines 3-13) of the description on file.

However, as indicated above in paragraph 2.2 above, the well-known bus technology using Tri-State outputs provides the basis

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

for easily expandable systems. The skilled person attempting to solve the problem identified above would consider applying such technology without exercise of an inventive step. Therefore, claim 9 fails to meet the requirements set out in Art 33(3) PCT.

2.4. Dependent claims

The additional features of claims 2-8 and 10-13 do not appear to comprise subject-matter upon which an inventive step could be based. This is because on the one hand the additional features of claims 2-7 are considered to represent mere normal/obvious design options that are readily available to the skilled person attempting to implement a design using tri-state technology.

3. Concerning Section VII: Description and other belongings

Contrary to Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1-D4 is not summarized in the description, nor are these documents identified therein.

10/031197
531 Rec'd PCT/PTC 15 JAN 2002

What is claimed is:

1. In a multiple protocol receiver, a demodulator section, comprising:
a plurality of demodulators (10(1), 10(2) ... 10(N)); and
a signal processor (30) for processing demodulated data;

CHARACTERIZED BY:

the plurality of demodulators (10(1), 10(2) ... 10(N)) demodulating data having a respectively different modulation schemes, and each having a tri-state output terminal for demodulated data; and

a signal bus (20), coupled between the respective output terminals of the plurality of demodulators (10(1), 10(2) ... 10(N)), and the signal processor (30).

2. The demodulator section of claim 1 CHARACTERIZED BY a system controller (40), coupled to the plurality of demodulators (10(1), 10(2) ... 10(N)), for conditioning a selected one of the plurality of demodulators (10(1), 10(2) ... 10(N)) to pass demodulated data through the output terminal to the signal bus (20), and conditioning the other ones of the plurality of demodulators (10(1), 10(2) ... 10(N)) to exhibit a high impedance at their respective output terminals.

3. The demodulator section of claim 1 CHARACTERIZED IN THAT each of the plurality of demodulators (10(1), 10(2) ... 10(N)) comprises a tri-state buffer (12(1), 12(2) ... 12(N)) having an output terminal coupled to the signal bus (20).

4. The demodulator section of claim 3 CHARACTERIZED IN THAT:
the tri-state buffer (12(1), 12(2) ... 12(N)) in each of the plurality of demodulators (10(1), 10(2) ... 10(N)) further comprises a control input terminal (OE); and
the demodulator section further comprising a system controller (40), respectively coupled to the control input terminal (OE) of the tri-state buffer (12(1), 12(2) ... 12(N)) in each of the plurality of demodulators (10(1), 10(2) ... 10(N)), for conditioning the tri-state buffer (12(1), 12(2) ... 12(N)) in a selected one of the plurality of demodulators (10(1), 10(2) ... 10(N)) to pass demodulated data through the output terminal to the signal bus (20), and conditioning the tri-state buffer (12(1), 12(2) ... 12(N)) in the other

ones of the plurality of demodulators (10(1), 10(2) ... 10(N)) to exhibit a high impedance at their respective output terminals.

5. The demodulator section of claim 4, CHARACTERIZED IN THAT:

each of the plurality of demodulators (10(1), 10(2) ... 10(N)) comprises a plurality of tri-state buffers (12(1), 12(2) ... 12(N)), having their control input terminals coupled in common to the system controller (40); and

the signal bus (20) comprises a plurality of signal lines (DATA, CLOCK, PACKET VALID, PACKET DATA) respectively coupled to the respective output terminals of the plurality of tri-state buffers (12(1), 12(2) ... 12(N)).

6. The demodulator section of claim 4, CHARACTERIZED IN THAT each of the plurality of demodulators (10(1), 10(2) ... 10(N)) further comprises a control register (14(1), 14(2) ... 14(N)), having an input terminal coupled to the system controller (40) and an output terminal coupled to the control input terminal (OE) of the tri-state buffer (12(1), 12(2) ... 12(N)).

7. The demodulator section of claim 1 CHARACTERIZED BY a buffer (25) coupled between the signal bus (20) and the signal processor (30).

8. The demodulator section of claim 1 CHARACTERIZED IN THAT the signal processor (30) is a transport processor.

9. A consumer video receiver, capable of receiving and processing a plurality of video representative signals, comprising:

a plurality of demodulators (10(1), 10(2) ... 10(N)) for generating respective demodulated video representative signals; and

a controllable transport processor (30), for processing a selected one of the demodulated video representative signals, to generate the represented video signal;

CHARACTERIZED BY:

the video representative signals having respectively different data protocols and being modulated using respectively different modulation schemes;

12

the plurality of demodulators generating the respective demodulated video representative signals having corresponding data protocols, each demodulator having a tri-state output terminal;

the controllable transport processor processing the demodulated video representative signal according to the corresponding data protocol; and
a data bus, coupled between the respective output terminals of the plurality of demodulators and the controllable transport processor.

10. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the controllable transport processor is fabricated on a single integrated circuit (IC).

11. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the receiver is contained within a single enclosure.

12. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the respectively different data protocols are selected from the group consisting of direct satellite system (DSS) signals, terrestrial broadcast high definition television (HDTV) signals, and direct video broadcast (DVB) signals.

13. The consumer video receiver of claim 9, CHARACTERIZED IN THAT the respectively different modulation schemes are selected from the group consisting of quadrature phase shift keyed (QPSK), vestigial sideband (VSB), and quadrature amplitude modulated (QAM).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 09 AUG 2001

WIPO

Applicant's or agent's file reference RCA 89646	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/17040	International filing date (day/month/year) 21/06/2000	Priority date (day/month/year) 15/07/1999
International Patent Classification (IPC) or national classification and IPC H04N5/00		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14/02/2001	Date of completion of this report 07.08.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Loeser, E Telephone No. +49 89 2399 8482 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17040

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-9 as originally filed

Claims, No.:

1-13 as received on 03/07/2001 with letter of 29/06/2001

Drawings, sheets:

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/17040

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-13
	No: Claims
Inventive step (IS)	Yes: Claims
	No: Claims 1-13
Industrial applicability (IA)	Yes: Claims 1-13
	No: Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

1. General

The present application does not satisfy the criteria set forth in Article 33(3). Details of the objections are set out below.

2. Concerning Section V.- Articles 33(2) and 33(3) PCT

2.1 Prior art

The following documents are cited:

D1: EP-A-0 776 127;
D2: EP-A-0 867 812;
D3: WO-A-86/07228;
D4: WO-A-99/11026.

2.2 Claim 1

The subject-matter of claim 1 defines

- (a) a number of modules each performing a same or similar function (demodulation in the present case) wherein
- (b1) the modules operate according to respective different modulation schemes;
- (b2) each module is provided with a tri-state output terminal for output data;
- (c) a signal bus coupled between the output terminals, and
- (d) a signal processor for processing output data (demodulated data) in the present case).

According to the description (p.3 lines 12-20) and to D1 (Fig. 1), it is known in the prior art to provide a number of demodulator modules 16-19 as identified in feature (a) above. It is further known to couple the output signal of a selected one (selected via a multiplexer) of such modules to a signal processor (D1: Fig.1: decoder 21). Thus the prior art (e.g. D1) also anticipates feature (d) identified above.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

The demodulators 16-19 disclosed in D1 do not disclose the claimed features (b1), (b2) and (c).

However, D1 also discloses a bus system 8 to which are connected a CPU 1 as a signal processor, and a hard disk device 3, a CD ROM device 4 and a MO device 5. The data stored with the latter devices are known to be stored according to different modulation schemes. Thus there is an implicit disclosure that when data signals are read from these devices, they are to be demodulated from the stored format to a format for subsequent processing. This requires respective different demodulators within the different devices. Hence the disclosed bus system with storage and processor modules connected thereto anticipates all features of claim 1 identified above with the exception of feature (b2).

Features (b2) and (c) are long and well known in computer technology. Tri-State is (or at least was) a trademark pertaining to output ports of a device which could be set either into a disabled or high-impedance state to effectively disconnect them from a bus, or into a enabled/low-impedance state in which the outputs may impose logic low or logic high levels onto the bus. Such technology is disclosed in D2 (col.2 line 29 - col.3 line 52), D3 (claim 9) and D4 (abstract; Fig.2).

Thus in light of the disclosure of D1 and the normal design options of the skilled person exemplified by the well-known Tri-State technology such as exemplarily disclosed in D2, D3 or D4, the subject-matter of claim 1 lacks an inventive step (Art. 33(3) PCT contravened).

It is to be noted that claim 1 would also have to be considered to lack an inventive step when following the chain of reasons developed below with respect to claim 9.

2.3 Claim 9

Claim 9 provides the following features in addition to the features of claim 1 identified in paragraph 2.2 above:

- (d) the demodulators are comprised in a consumer video receiver and demodulate respective video signals;
- (e) the signal processor is a controllable transport processor for processing a selected one of the demodulated video signals, to generate the represented video signal;
- (f) the video signals have respectively different data protocols and are modulated using respectively different modulation schemes.

The claimed apparatus can thus cope with the situation that differently modulated video signals with respective different data protocols are present. Such a situation is known from the prior art cited in the description (p.2 line 17 - p.3 line 20).

According to the described prior art (p.3 lines 12-20), it is known to provide additional video demodulators for respective additional modulation schemes, and an output signal from plural demodulator modules is selected by using a demultiplexer.

Hence adding a demodulator would require expanding the demultiplexer, unless free inputs are provided in excess. The described prior art is considered to anticipate all features of claim 9 with the exception of the claimed bus system with the Tri-State outputs of the demodulators.

Accordingly the subject-matter of claim 1 solves a problem of lacking expandability or flexibility of the prior art cited on p.3. This view is confirmed on p.4 (lines 3-13) of the description on file.

However, as indicated above in paragraph 2.2 above, the well-known bus technology using Tri-State outputs provides the basis

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/17040

for easily expandable systems. The skilled person attempting to solve the problem identified above would consider applying such technology without exercise of an inventive step. Therefore, claim 9 fails to meet the requirements set out in Art 33(3) PCT.

2.4. Dependent claims

The additional features of claims 2-8 and 10-13 do not appear to comprise subject-matter upon which an inventive step could be based. This is because on the one hand the additional features of claims 2-7 are considered to represent mere normal/obvious design options that are readily available to the skilled person attempting to implement a design using tri-state technology.

3. Concerning Section VII: Description and other belongings

Contrary to Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1-D4 is not summarized in the description, nor are these documents identified therein.

1. In a multiple protocol receiver, a demodulator section, comprising:
a plurality of demodulators each having a tri-state output terminal for
5 demodulated data; and
a signal bus, coupled between the respective output terminals of the
plurality of demodulators, and a signal processor for processing the demodulated
data.

10 2. The demodulator section of claim 1 further comprising a system
controller, coupled to the plurality of demodulators, for conditioning a selected
one of the plurality of demodulators to pass demodulated data through the
output terminal to the signal bus, and conditioning the other ones of the plurality
of demodulators to exhibit a high impedance at their respective output terminals.

15 3. The demodulator section of claim 1 wherein each of the plurality of
demodulators comprises a tri-state buffer having an output terminal coupled to
the signal bus.

20 4. The demodulator section of claim 3 wherein:
the tri-state buffer in each of the plurality of demodulators further
comprises a control input terminal; and
the demodulator section further comprising a system controller,
respectively coupled to the control input terminal of the tri-state buffer in each of
25 the plurality of demodulators, for conditioning the tri-state buffer in a selected
one of the plurality of demodulators to pass demodulated data through the
output terminal to the signal bus, and conditioning the tri-state buffer in the
other ones of the plurality of demodulators to exhibit a high impedance at their
respective output terminals.

5. The demodulator section of claim 4, wherein:
each of the plurality of demodulators comprises a plurality of tri-state buffers, having their control input terminals coupled in common to the system controller; and
5 the signal bus comprises a plurality of signal lines respectively coupled to the respective output terminals of the plurality of tri-state buffers.
6. The demodulator section of claim 4, wherein each of the plurality of
10 demodulators further comprises a control register, having an input terminal coupled to the system controller and an output terminal coupled to the control input terminal of the tri-state buffer.
7. The demodulator section of claim 1 further comprising a buffer
15 coupled between the signal bus and the signal processor.
8. The demodulator section of claim 1 wherein the signal processor is a transport processor.